**AERMOD Test Cases – User Instructions**

Last Updated September 2024

**Instructions for Processing SCRAM AERMOD Test Cases**

This document summarizes the procedure to obtain, modify, and process AERMOD test cases for default model version comparison. This document details the current state of the SCRAM test suite and the proposed changes to facilitate the successful completion of the following procedure. Upon completion of processing, the user will have created AERMOD output, summary, plot and post files (when applicable), and R comparison plots for each test case.

Three sets of the standard testcases were modeled:

1. AERMOD 23132 using meteorological data processed with AERMET 23132

(aermet\_23132\_aermod\_23132),

1. AERMOD 24142 using meteorological data processed with AERMET 23132

(aermet\_23132\_aermod\_24142), and

1. AERMOD 24142 using meteorological data processed with AERMET 24142

(aermet\_24142\_aermod\_24142).

The three sets of AERMOD testcases were compared to demonstrate the following:

1. Consequences of AERMET v24142 updates on AERMOD v.24142 concentrations and
2. Cumulative consequence of AERMET and AERMOD updates on AERMOD v.24142 concentrations.

The test cases are currently available for download from the SCRAM website at <https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models>. The test cases are zipped and must be downloaded and extracted by the user. Each AERMOD test suite contains six directories (“inputs, “meteorology”, “Outputs”, “plotfiles”, “postfiles”, and “rdata”). The test suite main directory also includes a runtests\_AERMOD.bat file which will execute all of the test files in the inputs directory. The inputs directory contains 70 files, including the required AERMOD control files and files required to process the test cases for the specified model version. The AERMOD executable will need to be downloaded from the EPA SCRAM website (linked below). The meteorology directory contains 19 files associated with the test cases. Appendix A lists the files provided in the inputs and meteorology directories.

The following instructions describe the procedure to compare the cumulative consequences of AERMET and AERMOD updates from v.23132 to v.24142 on AERMOD v.241421 concentrations using the “aermet\_23132\_aermod\_23132” and “aermet\_24142\_aermod\_24142 sets of test cases.

Processing the proposed test suite of cases requires:

* 50 updated AERMOD input files for each case the user intends to compare,
* the “runtests\_AERMOD.bat” batch file,
* two R scripts “Process\_AERMOD\_test\_cases\_output.R” and “Compare\_AERMOD\_test\_cases.R,” and
* two R support files (“read\_POS.fun.R” and “read\_POS\_TESTDEP.fun.R”).

AERMOD control (input) files to accommodate the processing of aermet\_23132\_aermod\_23132 and aermet\_24142\_aermod\_24142 accompany this documentation.

The R scripts and support files can be used for all cases. It should be noted that the AERMOD and R files are currently designed to produce H1H plot and post files for all cases that AERMOD allows to test functionality, regardless of the suitability of the design value for a particular case.

To process the AERMOD test suite:

1. Download the current AERMOD Test Cases (ZIP) files from the SCRAM website:

(<https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models#aermod>).

1. Unzip the .zip file into a working directory. The location of the directories do not have restrictions and can be in any location.
2. Download the aermod.exe executable file from the SCRAM website and copy it to the aermet\_23132\_aermod\_23132 and aermet\_24142\_aermod\_24142 “inputs” directory.
3. Open the “runtests\_AERMOD.bat” batch file in a text editor. No user changes are required to process the batch file.
4. Run the “runtests\_AERMOD.bat” batch file. At the conclusion of processing, the test case base directory, specified in step 5, will have the following 5 subdirectories with the number of files indicated (filenames are listed in Appendix B):

* inputs (58 files),
* meteorology (19 files),
* Outputs (162 files),
* plotfiles (62 files), and
* postfiles (108 files).

Although the 46 AERMOD input files will process the full suite of 108 AERMOD test cases. The “scimtest.inp” file produces six Sampled Chronological Input Model test cases evaluated annually, the “testpm25.inp” file is a test case for the PM2.5 pollutant, associated with a 24-hour (not 1-hour) standard, and the five “testpm10” input files, associated with the multiyear test case, produces a single, combined plotfile and postfile for the full scenario. Additional plotfiles that were part of the SCRAM download package, but not reprocessed, makeup the remaining contents of the plotfiles directory to avoid removing files that may remain of interest to the user.

RLINE test cases were first included for the AERMOD version 19191 update. RLINE is not compatible for previous releases of AERMOD. The “runtests\_AERMOD.bat” will completely execute – even for the previous releases. If a previous release is being tested, the output file for that scenario will show a start-up error. The R scripts are designed to only compare successfully completed runs of AERMOD; this means if you are comparing a previous release to 19191 the RLINE test cases will not be compared. At the end of the R script “Compare\_AERMOD\_test\_cases.R”, a message indicated how many test cases were not tested will be displayed.

To create comparison plots for two sets of AERMOD test cases:

1. Confirm that the AERMOD test suite has been processed for the two test cases intended for comparison. The R script expects postfiles that have the naming convention of the test case name, followed by “\_01H”.
2. Confirm the two R function files, “read\_POS.fun.R” and “read\_POS\_TESTDEP.fun.R” are located in the same directory as the main “Process\_AERMOD\_test\_cases\_output.R” script. Although the files must be in the same directory, the user may choose the location of that directory.
3. Open “Process\_AERMOD\_test\_cases\_output.R”. The user must specify:
4. the working directory containing the R scripts in line 37 (work\_dir). It is recommended that the same working directory used for processing the AERMOD batch file is used for R processing,
5. the test case names in line 61 (testcase\_names). The test case\_names must be exactly folder name for each test case. Both test case scenarios should be listed here to allow the script to loop through both folders.

The rdata directory will be created if the directory did not previously exist.

1. Source the “Process\_AERMOD\_test\_cases\_ouput.R” script. One .rdata file will be produced for each of the 98 test cases. After completion, confirm .rdata files populate the user-specified rdata directory.
2. Open “Compare\_AERMOD\_test\_cases.R”. The user must specify:
3. the working directory containing the R scripts in line 27 (work\_dir). It is recommended that the same working directory used for processing the AERMOD batch file is used for R processing,
4. the test case names for the two test cases intended for comparison in line 22 (testcase\_name1) and in line 23 (testcase\_name2). The name of the test case should be exactly the folder name for each test case.
5. Source the “Compare\_AERMOD\_test\_cases.R” script. One .png file, containing a comparison plot for the two selected AERMOD cases, will be produced for each of the 98 test cases, and a comma-delineated summary table, containing comparison statistics, will populate the user-defined plotfiles directory. A list of summary statistics is provided below:

* number of hours (nhours), receptors (nreceps), and data points (nobs) in each comparison
* mean concentrations for test case 1 (conc1mean) and test case 2 (conc2mean)
* average ration of test case 1 versus test case 2 (avgconcratio)
* mean bias (meanbias) and mean error (meanerror) between test case 1 and test case 2
* average relative difference (avgreldiff) between test case 1 and test case 2
* normalized mean bias (normmeanbias) and normalized mean error (normmeanerror)
* fractional bias (fracbias) and fractional error (fracerror)
* correlation coefficient (corrcoeff)
* the robust highest concentration for test case 1 (RHC1) and test case 2 (RHC2), based on the top 26 concentrations
* fractional bias based on the top 26 concentrations (fracbias-top26)

Due to the large size of AERMOD post files, processing the “Process\_AERMOD\_test\_cases.R” script will delete all postfiles that are processed during the proposed test suite procedure. Seven files (LOVETT\_24H.PST, LVT24\_ELEV.PST, LVT24\_FLAT.PST, MCR\_03H.PST, MCR\_24H.PST, PSET2PA.PST, and TESTPRT2\_MON.PST), associated with the existing AERMOD control files available on SCRAM, will not be removed, in the event the files are of interest to the user. If plotfiles are of interest to the user, a copy of the files should be secured prior to processing the “AERMOD\_test\_cases\_comparison.R” script.

**APPENDIX A – SCRAM Directory Contents**

Inputs Directory (58 Files)

|  |  |
| --- | --- |
| aermod-baldwin45.inp | multurb.inp |
| aermod-baldwinHoriz.inp | multurb\_gridpolr.dat |
| aermod-baldwinVert.inp | multurb\_sources.dat |
| aertest.inp | olm.inp |
| allsrcs.inp | olmgrp.inp |
| bg\_no2\_arm2\_ppb.inp | openpits.inp |
| bg\_no2\_arm2\_ugm3.inp | ozone.dat |
| bg\_no2\_grsm\_ppb.inp | psdcred.inp |
| bg\_no2\_grsm\_ugm3.inp | pset2pa.emi |
| bg\_no2\_olm\_ppb.inp | pset2pa.so |
| bg\_no2\_olm\_ugm3.inp | pvmrm.inp |
| bg\_no2\_pvmrm\_ppb.inp | scimtest.inp |
| bg\_no2\_pvmrm\_ugm3.inp | Test1\_Base\_cart\_3cond\_SNC.inp |
| bg\_no2\_ttrm\_ppb.inp | Test3\_Base\_cart\_3cond\_SNC\_bar.inp |
| bg\_no2\_ttrm\_ugm3.inp | Test4\_Base\_cart\_3cond\_SNC\_dep.inp |
| bg1.dat | Test20\_Urban\_cart\_3cond\_SNC.inp |
| blp\_urban.inp | testgas.inp |
| capped.inp | testgas2.inp |
| capped\_nostd.inp | testpart.inp |
| faltelev.inp | testpm10.inp |
| hrdow.inp | testpm10\_1986.inp |
| list\_of\_files.txt | testpm10\_1987.inp |
| lovett.inp | testpm10\_1988.inp |
| lovett\_rec.dat | testpm10\_1989.inp |
| lovett\_src.dat | testpm10\_1990.inp |
| lvthemis.dat | testpm25.inp |
| mcr.emi | testprt2.inp |
| mcr.inp |  |

Meteorology Directory (19 Files)

|  |  |
| --- | --- |
| AERMET2.PFL | LOVETT.PFL |
| AERMET2.SFC | LOVETT.SFC |
| ANCH-99\_ADJU.PFL | MCR.PFL |
| ANCH-99\_ADJU.SFC | SALEM\_86-90\_ADJU.PFL |
| cordero.pfl | SALEM\_86-90\_ADJU.SFC |
| cordero.sfc | scimmed\_met.pfl |
| HOUSTON\_ADJU.PFL | scimmed\_met.sfc |
| HOUSTON\_ADJU.SFC | test.pfl |
| list\_of\_files.txt | test.sfc |

**APPENDIX B – Post Processing Directory Contents**

Inputs Directory (58 Files)

|  |  |
| --- | --- |
| aermod-baldwin45.inp | multurb.inp |
| aermod-baldwinHoriz.inp | multurb\_gridpolr.dat |
| aermod-baldwinVert.inp | multurb\_sources.dat |
| aertest.inp | olm.inp |
| allsrcs.inp | olmgrp.inp |
| bg\_no2\_arm2\_ppb.inp | openpits.inp |
| bg\_no2\_arm2\_ugm3.inp | ozone.dat |
| bg\_no2\_grsm\_ppb.inp | psdcred.inp |
| bg\_no2\_grsm\_ugm3.inp | pset2pa.emi |
| bg\_no2\_olm\_ppb.inp | pset2pa.so |
| bg\_no2\_olm\_ugm3.inp | pvmrm.inp |
| bg\_no2\_pvmrm\_ppb.inp | scimtest.inp |
| bg\_no2\_pvmrm\_ugm3.inp | Test1\_Base\_cart\_3cond\_SNC.inp |
| bg\_no2\_ttrm\_ppb.inp | Test3\_Base\_cart\_3cond\_SNC\_bar.inp |
| bg\_no2\_ttrm\_ugm3.inp | Test4\_Base\_cart\_3cond\_SNC\_dep.inp |
| bg1.dat | Test20\_Urban\_cart\_3cond\_SNC.inp |
| blp\_urban.inp | testgas.inp |
| capped.inp | testgas2.inp |
| capped\_nostd.inp | testpart.inp |
| faltelev.inp | testpm10.inp |
| hrdow.inp | testpm10\_1986.inp |
| list\_of\_files.txt | testpm10\_1987.inp |
| lovett.inp | testpm10\_1988.inp |
| lovett\_rec.dat | testpm10\_1989.inp |
| lovett\_src.dat | testpm10\_1990.inp |
| lvthemis.dat | testpm25.inp |
| mcr.emi | testprt2.inp |
| mcr.inp |  |

Meteorology Directory (19 Files)

|  |  |
| --- | --- |
| AERMET2.PFL | LOVETT.PFL |
| AERMET2.SFC | LOVETT.SFC |
| ANCH-99\_ADJU.PFL | MCR.PFL |
| ANCH-99\_ADJU.SFC | SALEM\_86-90\_ADJU.PFL |
| cordero.pfl | SALEM\_86-90\_ADJU.SFC |
| cordero.sfc | scimmed\_met.pfl |
| HOUSTON\_ADJU.PFL | scimmed\_met.sfc |
| HOUSTON\_ADJU.SFC | test.pfl |
| list\_of\_files.txt | test.sfc |

Outputs Directory (162 Files)

|  |  |
| --- | --- |
| aermod-baldwin45.out | OLM\_ERRORS.OUT |
| aermod-baldwin45\_ERRORS.OUT | olmgrp.out |
| aermod-baldwinHoriz.out | OLMGRP.SUM |
| aermod-baldwinHoriz\_ERRORS.OUT | OLMGRP\_ERRORS.OUT |
| aermod-baldwinVert.out | openpits.out |
| aermod-baldwinVert\_ERRORS.OUT | OPENPITS.SUM |
| aertest.out | OPENPITS\_ERRORS.OUT |
| AERTEST.SUM | psdcred.out |
| AERTEST\_ERRORS.OUT | PSDCRED.SUM |
| allsrcs.out | PSDCRED\_ERRORS.OUT |
| ALLSRCS.SUM | PSET2PA.DA1 |
| ALLSRCS\_ERRORS.OUT | PSET2PA.DA2 |
| baldwin45.SUM | PSET2PA.DA3 |
| baldwinHorz.SUM | PSET2PA.DA4 |
| baldwinVert.SUM | PSET2PA.DA5 |
| BG\_NO2\_ARM2\_PPB.err | PSET2PA.DA6 |
| bg\_no2\_arm2\_ppb.out | PSET2PA.DA7 |
| BG\_NO2\_ARM2\_PPB.sum | PSET2PA.DA8 |
| bg\_no2\_arm2\_ugm3.out | pvmrm.out |
| BG\_NO2\_GRSM\_PPB.err | PVMRM.SUM |
| bg\_no2\_grsm\_ppb.out | PVMRM\_ERRORS.OUT |
| bg\_no2\_grsm\_ugm3.out | scimtest.out |
| BG\_NO2\_OLM\_PPB.err | SCIMTEST.SUM |
| bg\_no2\_olm\_ppb.out | SCIMTEST\_ERRORS.OUT |
| bg\_no2\_olm\_ugm3.out | SEAHRST1.DAT |
| bg\_no2\_pvmrm\_ppb.out | SEAHRST2.DAT |
| bg\_no2\_pvmrm\_ugm3.out | SEAHRST3.DAT |
| bg\_no2\_ttrm\_ppb.out | SEAHRST4.DAT |
| bg\_no2\_ttrm\_ugm3.out | SEAHRST5.DAT |
| BG-NO2.sum | SEAHRST6.DAT |
| BG-NO2\_ARM2\_UGM3.err | surfcoal.out |
| BG-NO2\_ARM2\_UGM3.sum | SURFCOAL.SUM |
| BG-NO2\_GRSM\_PPB.sum | SURFCOAL\_ERRORS.OUT |
| BG-NO2\_GRSM\_UGM3.err | Test1\_Base\_cart\_3cond\_SNC.out |
| BG-NO2\_GRSM\_UGM3.sum | Test1\_Base\_cart\_3cond\_SNC\_ERRORS.out |
| BG-NO2\_OLM\_PPB.sum | Test3\_Bar\_cart\_3cond\_SNC\_bar\_ERRORS.OUT |
| BG-NO2\_OLM\_UGM3.err | Test3\_Base\_cart\_3cond\_SNC\_bar.out |
| BG-NO2\_OLM\_UGM3.sum | Test4\_Base\_cart\_3cond\_SNC\_dep.out |
| BG-NO2\_PVMRM\_PPB.err | Test4\_Base\_cart\_3cond\_SNC\_dep\_ERRORS.OUT |
| BG-NO2\_PVMRM\_PPB.sum | Test20\_Urban\_cart\_3cond\_SNC.out |
| BG-NO2\_PVMRM\_UGM3.err | Test20\_Urban\_cart\_3cond\_SNC\_ERRORS.OUT |
| BG-NO2\_TTRM\_PPB.err | testgas.out |
| BG-NO2\_TTRM\_PPB.sum | TESTGAS.SUM |
| BG-NO2\_TTRM\_UGM3.err | TESTGAS\_ERRORS.OUT |
| BG-NO2\_TTRM\_UGM3.sum | testgas2.out |
| blp\_urban.out | TESTGAS2.SUM |
| capped.out | TESTGAS2\_ERRORS.OUT |
| CAPPED.SUM | testpart.out |
| CAPPED\_ERRORS.OUT | TESTPART.SUM |
| capped\_nostd.out | TESTPART\_ERRORS.OUT |
| CAPPED\_NOSTD.SUM | testpm10.out |
| CAPPED\_NOSTD\_ERRORS.OUT | TESTPM10.SUM |
| ERRORS\_IN\_URBAN.OUT | testpm10\_1986.out |
| FLATEELEV24.RNK | TESTPM10\_1986.SUM |
| flatelev.out | TESTPM10\_1986\_ERRORS.OUT |
| FLATELEV.SUM | testpm10\_1987.out |
| FLATELEV\_ERRORS.OUT | TESTPM10\_1987.SUM |
| FLATELEV1.RNK | TESTPM10\_1987\_ERRORS.OUT |
| FLATELEV3.RNK | testpm10\_1988.out |
| hrdow.out | TESTPM10\_1988.SUM |
| HRDOW.SUM | TESTPM10\_1988\_ERRORS.OUT |
| HRDOW\_ERRORS.OUT | testpm10\_1989.out |
| in\_urban.out | TESTPM10\_1989.SUM |
| lovett.out | TESTPM10\_1989\_ERRORS.OUT |
| LOVETT.SUM | testpm10\_1990.out |
| LOVETT\_ERRORS.OUT | TESTPM10\_1990.SUM |
| LOVETT1.RNK | TESTPM10\_1990\_ERRORS.OUT |
| LOVETT3.RNK | TESTPM10\_ERRORS.OUT |
| LOVETT24.RNK | TESTPM10\_MAXIFILE.OUT |
| MAX24PM.FIL | TESTPM10\_MULTYR\_SEASHR.FIL |
| mcr.out | TESTPM10\_SEASHR.FIL |
| MCR.SUM | testpm25.out |
| MCR\_ERRORS.OUT | TESTPM25.SUM |
| MCR01.RNK | TESTPM25\_ERRORS.OUT |
| MCR03.RNK | TESTPM25\_SEASHR.FIL |
| MCR24.RNK | testprt2.out |
| multurb.out | TESTPRT2.SUM |
| MULTURB.SUM | TESTPRT2\_ERRORS.OUT |
| MULTURB\_ERRORS.OUT | TESTPRT2\_SEASHR.DAT |
| olm.out | URBDBG.DBG |
| OLM.SUM | URBDBG.DBG1 |

Postfiles Directory (108 Files)

|  |  |
| --- | --- |
| AERMOD-BALDWIN45\_01H.PST | NO2\_ARM2\_PPB\_SRC.PST |
| AERMOD-BALDWINHORIZ\_01H.PST | NO2\_ARM2\_UGM3\_01H.PST |
| AERMOD-BALDWINVERT\_01H.PST | NO2\_ARM2\_UGM3\_BKG.PST |
| AERTEST\_01H.PST | NO2\_ARM2\_UGM3\_SRC.PST |
| ALLSRCS\_AREA\_01H.PST | NO2\_GRSM\_PPB\_01H.PST |
| ALLSRCS\_AREAP\_01H.PST | NO2\_GRSM\_PPB\_BKG.PST |
| ALLSRCS\_BLINE\_01H.PST | NO2\_GRSM\_PPB\_SRC.PST |
| ALLSRCS\_CIRC\_01H.PST | NO2\_GRSM\_UGM3\_01H.PST |
| ALLSRCS\_LINE\_01H.PST | NO2\_GRSM\_UGM3\_BKG.PST |
| ALLSRCS\_OPENPIT\_01H.PST | NO2\_GRSM\_UGM3\_SRC.PST |
| ALLSRCS\_RLINEB\_01H.PST | NO2\_OLM\_PPB\_01H.PST |
| ALLSRCS\_RLINEB2\_01H.PST | NO2\_OLM\_PPB\_BKG.PST |
| ALLSRCS\_RLINEBA\_01H.PST | NO2\_OLM\_PPB\_SRC.PST |
| ALLSRCS\_RLINEDE\_01H.PST | NO2\_OLM\_UGM3\_01H.PST |
| ALLSRCS\_STACK\_01H.PST | NO2\_OLM\_UGM3\_BKG.PST |
| ALLSRCS\_STACKDW\_01H.PST | NO2\_OLM\_UGM3\_SRC.PST |
| ALLSRCS\_VOL\_01H.PST | NO2\_PVMRM\_PPB\_01H.PST |
| BLP\_URBAN\_2S26\_01H.PST | NO2\_PVMRM\_PPB\_BKG.PST |
| BLP\_URBAN\_2S29\_01H.PST | NO2\_PVMRM\_PPB\_SRC.PST |
| CAPPED\_NOSTD\_STACK2C\_01H.PST | NO2\_PVMRM\_UGM3\_01H.PST |
| CAPPED\_NOSTD\_STACK2CE\_01H.PST | NO2\_PVMRM\_UGM3\_BKG.PST |
| CAPPED\_NOSTD\_STACK2H\_01H.PST | NO2\_PVMRM\_UGM3\_SRC.PST |
| CAPPED\_NOSTD\_STACK2HE\_01H.PST | NO2\_TTRM\_PPB\_01H.PST |
| CAPPED\_STACK1\_01H.PST | NO2\_TTRM\_PPB\_BKG.PST |
| CAPPED\_STACK1C\_01H.PST | NO2\_TTRM\_PPB\_SRC.PST |
| CAPPED\_STACK1C0\_01H.PST | NO2\_TTRM\_UGM3\_01H.PST |
| CAPPED\_STACK1H\_01H.PST | NO2\_TTRM\_UGM3\_BKG.PST |
| CAPPED\_STACK2\_01H.PST | NO2\_TTRM\_UGM3\_SRC.PST |
| CAPPED\_STACK2C\_01H.PST | OLM\_01H.PST |
| CAPPED\_STACK2C0\_01H.PST | OLMGRP\_01H.PST |
| CAPPED\_STACK2CE\_01H.PST | OPENPITS\_PITGAS\_01H.PST |
| CAPPED\_STACK2H\_01H.PST | OPENPITS\_PITPRT1\_01H.PST |
| FLATELEV\_ELEV\_STK\_01H.PST | OPENPITS\_PITPRT2\_01H.PST |
| FLATELEV\_FLAT\_STK\_01H.PST | PSDCRED\_NAAQS\_01H.PST |
| HRDOW\_STACK1\_01H.PST | PSDCRED\_PSDINC\_01H.PST |
| HRDOW\_STACK2\_01H.PST | PSET2PA.PST |
| HRDOW\_STACK3\_01H.PST | PVMRM\_01H.PST |
| HRDOW\_STACK4\_01H.PST | SURFCOAL\_01H.PST |
| HRDOW\_STACK5\_01H.PST | SURFCOAL\_ACTVTY\_01H.PST |
| HRDOW\_STACK6\_01H.PST | SURFCOAL\_NPIT\_01H.PST |
| IN\_URBAN\_01H.PST | SURFCOAL\_OTHERS\_01H.PST |
| LOVETT\_01H.PST | SURFCOAL\_ROADS\_01H.PST |
| LOVETT\_24H.PST | SURFCOAL\_SPIT\_01H.PST |
| LVT24\_ELEV.PST | Test1\_Base\_cart\_3cond\_SNC.PST |
| LVT24\_FLAT.PST | Test3\_Base\_cart\_3cond\_SNC\_bar.PST |
| MCR\_01H.PST | Test4\_Base\_cart\_3cond\_SNC\_dep.PST |
| MCR\_03H.PST | Test20\_Urban\_cart\_3cond\_SNC.PST |
| MCR\_24H.PST | TESTGAS\_01H.PST |
| MULTURB\_STACK1\_01H.PST | TESTGAS2\_01H.PST |
| MULTURB\_STACK2\_01H.PST | TESTPART\_01H.PST |
| MULTURB\_STACK3\_01H.PST | TESTPM10\_01H.PST |
| MULTURB\_STACK4\_01H.PST | TESTPM10\_MULTYR\_01H.PST |
| NO2\_ARM2\_PPB\_01H.PST | TESTPRT2\_01H.PST |
| NO2\_ARM2\_PPB\_BKG.PST | TESTPRT2\_MON.PST |

Plotfiles Directory (62 Files)

|  |  |
| --- | --- |
| AERTEST\_01H.PLT | NO2\_OLM\_PPB\_01H.PLT |
| CAPPED\_NOSTD\_STACK2C\_01H.PLT | NO2\_OLM\_UGM3\_01H.PLT |
| CAPPED\_NOSTD\_STACK2CE\_01H.PLT | NO2\_PVMRM\_PPB\_01H.PLT |
| CAPPED\_NOSTD\_STACK2H\_01H.PLT | NO2\_PVMRM\_UGM3\_01H.PLT |
| CAPPED\_NOSTD\_STACK2HE\_01H.PLT | NO2\_TTRM\_PPB\_01H.PLT |
| CAPPED\_STACK1\_01H.PLT | NO2\_TTRM\_UGM3\_01H.PLT |
| CAPPED\_STACK1C\_01H.PLT | OPENPITS\_PITGAS\_01H.PLT |
| CAPPED\_STACK1C0\_01H.PLT | OPENPITS\_PITPRT1\_01H.PLT |
| CAPPED\_STACK1H\_01H.PLT | OPENPITS\_PITPRT2\_01H.PLT |
| CAPPED\_STACK2\_01H.PLT | PSDCRED\_NAAQS\_01H.PLT |
| CAPPED\_STACK2C\_01H.PLT | PSDCRED\_PSDINC\_01H.PLT |
| CAPPED\_STACK2C0\_01H.PLT | SURFCOAL\_01H.PLT |
| CAPPED\_STACK2CE\_01H.PLT | SURFCOAL\_ACTVTY\_01H.PLT |
| CAPPED\_STACK2H\_01H.PLT | SURFCOAL\_NPIT\_01H.PLT |
| FLATELEV\_ELEV\_STK\_01H.PLT | SURFCOAL\_OTHERS\_01H.PLT |
| FLATELEV\_FLAT\_STK\_01H.PLT | SURFCOAL\_ROADS\_01H.PLT |
| IN\_URBAN\_01H.PLT | SURFCOAL\_SPIT\_01H.PLT |
| LOVETT\_01H.PLT | TESTGAS\_01H.PLT |
| LOVETTANN.PLT | TESTGAS2\_01H.PLT |
| LVTAN\_ELEV.PLT | TESTGAS2\_03H.PLT |
| LVTAN\_FLAT.PLT | TESTGAS2\_08H.PLT |
| MCR\_01H.PLT | TESTGAS2\_24H.PLT |
| MCRANN.PLT | TESTGAS2\_MON.PLT |
| MULTURB\_STACK1\_01H.PLT | TESTGAS2ANN.PLT |
| MULTURB\_STACK2\_01H.PLT | TESTPART\_01H.PLT |
| MULTURB\_STACK3\_01H.PLT | TESTPRT2\_01H.PLT |
| MULTURB\_STACK4\_01H.PLT | TESTPRT2\_03H.PLT |
| NO2\_ARM2\_PPB\_01H.PLT | TESTPRT2\_08H.PLT |
| NO2\_ARM2\_UGM3\_01H.PLT | TESTPRT2\_24H.PLT |
| NO2\_GRSM\_PPB\_01H.PLT | TESTPRT2\_MON.PLT |
| NO2\_GRSM\_UGM3\_01H.PLT | TESTPRT2ANN.PLT |

**APPENDIX C – August 2023 Updates**

New features after August 2023:

* When the user runs the “Process\_AERMOD\_test\_cases\_output.R” script, there will be two files created: runtimes.csv and runtimes.txt. These files are a report of the runtimes it takes to process each test case.
* The user can deactivate creating these files by setting “is\_active\_runtime\_tests” to FALSE.
* If the user would like a more accurate runtime report, they can increase the variable “number\_of\_runtime\_cycles” to run the test cases however many times the user wants. The runtime script will average the runtimes based on n number of runs.
* There is now error handling in the “Process\_AERMOD\_test\_cases\_output.R” script. If the postfile does not exist or is corrupted in some way, a spreadsheet called “ErrorTestCases.csv” will be created that contains the version and test case with the errored file. If there are no errors, the file “ErrorTestCases.csv” will still be created and contain the text “There were no errors when processing the test cases.”
* After finishing running the script “Compare\_AERMOD\_test\_cases.R”, a file called “TestCaseDifferences\_BestFitSlope.csv” will be created. This file shows the differences between each test case version. The spreadsheet will be formatted as follows:
  + The first column is the test case name.
  + The following columns are paired in two for each test case version. The first column in the pair is a ratio of conc1mean / conc2mean between the two versions.
  + The second column in the pair is the percent difference between conc1mean and conc2mean.